

### Claims

1. Method for structuring the surface of a substrate (1), whereby the substrate (1) is prepared and the material of the substrate (1) is elastically expanded by the application of a tensile stress so that a surface area of the substrate (1) to be structured is enlarged, whereby then at least one solution is applied to the enlarged surface area, which solution contains at least one solid substance dissolved in a solvent, whereby the expansion is then at least partly reversed by reduction or removal of the tensile stress, so that the size of the structure is reduced to the size of the structure to be produced, whereby the solvent is removed from the surface of the substrate (1) so that the solid substance remains behind.
2. Method for structuring the surface of a substrate (1), whereby the substrate (1) is prepared, and on a surface area of the substrate which is enlarged with respect to a surface area that is to be provided with the structure, at least one solution is applied that contains at least one solid substance dissolved in a solvent, whereby the material of the substrate (1) is elastically compressed by the application of a compression stress so that the size of the surface area on which the solution was applied is reduced to the size of the surface area to be provided with the structure, and whereby the solvent is removed from the surface of the substrate (1) so that the solid remains behind.
3. Method as claimed in Claims 1 or 2, characterized in that the substrate (1) is realized in the form of a board or film and that the material of the substrate (1) is expanded and/or compressed by central stretching in the plane of extension of the substrate (1) radially with respect to a center that is preferably approximately in the center of the substrate (1).
4. Method as claimed in one of the Claims 1 to 3, characterized in that the material of the substrate (1) is expanded and/or compressed by one-dimensional stretching in the plane of extension of the substrate (1).

5. Method as claimed in one of the Claims 1 to 4, characterized in that the solutions are applied to the surface area so that on the surface of the substrate (1), a coating is formed that has a plurality of different coating areas arranged next to one another in a matrix.
6. Method as claimed in one of the Claims 1 to 5, characterized in that to produce the structure, at least one biomolecule is applied to the substrate (1) that preferably bonds to the substrate.
7. Method as claimed in one of the Claims 1 to 6, characterized in that the substrate (1) consists of an optically transparent material.
8. Method as claimed in one of the Claims 1 to 7, characterized in that the substrate (1) contains at least one elastomer, in particular polypyrrole, polyacetylene and/or polydimethylsiloxane (PDMS).
9. Method as claimed in one of the Claims 1 to 8, characterized in that the substrate (1), after the reduction or removal of the tensile stress and/or after the application of the compression stress is applied to a detection device which is preferably integrated in a semiconductor chip (3), preferably so that the coating areas each cover at least one sensor (4) of the detection device.
10. Method as claimed in one of the Claims 1 to 9, characterized in that the substrate (1) contains a ceramic material, preferably tetragonal zirconium oxide, magnesium aluminum oxide spinel and/or alpha aluminum oxide.